Vol. V JANUARY, 1947 No. 1

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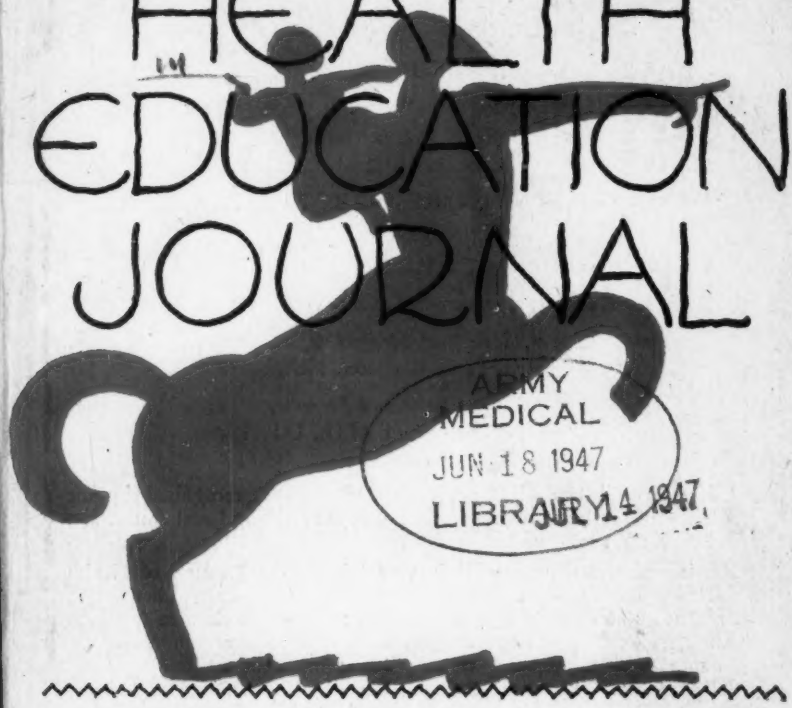
# THE HEALTH EDUCATION JOURNAL



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| | Page |
|---|---|
| A BIOLOGICAL APPROACH TO EDUCATION | 1 |
| TOWN PLANNING AND HEALTH—PART I | 2 |
| HOUSES INTO HOMES | 7 |
| WORLD ASPECTS OF NUTRITION—PART I | 12 |
| DIET AND DENTAL HEALTH | 16 |
| ACTIVITY IN EDUCATION | 20 |
| V.D. . . . CINDERELLA OR BOGEYMAN? | 24 |
| THE FUTURE OF PHYSICAL EDUCATION | 27 |
| THE ROMANCE OF ANAESTHESIA | 32 |
| SELF-REGULATION OF DIET IN CHILDHOOD | 37 |
| METHOD IN HEALTH EDUCATION—PART I | 41 |
| FILM NOTES | REVIEWS |


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*The*
# HEALTH EDUCATION
## JOURNAL

*A Quarterly for all who care about helping others towards a healthy Life*

VOL. V. JANUARY 1947 No. 1

## A BIOLOGICAL APPROACH TO EDUCATION

THE experiment described by Dr. Clara Davis (page 37) is of great significance to all concerned with education or child health. It demonstrates that the unspoilt child has the remarkable power of selecting from an assortment of presented foodstuffs a diet that is well-balanced and upon which he thrives. Interest in the different foodstuffs varies from child to child and in the same child from time to time, but appears to be a true index of the child's inner needs.

Since body, mind and spirit are a unity, it is probable that the child's other instinctive interests mask similar innate drives towards intellectual, emotional and social equilibrium, and that he reaches out towards his full stature of body, mind and spirit as naturally as a plant turns towards the sun. But the nature of the physical, mental, and social environment is especially important. Despite its hereditary set toward symmetry, the window-plant, shut off from the sun on all but one side, will develop one-sidedly.

So it is not enough that the child is instinctively seeking from his environment what he needs to enable him to grow and develop fully and to maintain his inner harmony and balance. As in Dr. Davis' experiment, the environment must be adequate. The children chose their diets wisely, it is true; but their choice was limited to a wide range of natural foodstuffs: their taste was not confused by artificial mixtures or by the unnatural isolation of a part of a complex food: nor was the natural wisdom of the body overruled by outside authority, or example.

Of course, one of the great tasks of education is to help the child to achieve an integration of his own inner drives with the reasonable requirements of the community in which he must live. On this adjustment depend his happiness and the well-being of Society. Dr. Davis has shown, however, that the community has been unreasonable in trying to impose upon the child's instinctive nutritional drives some standard diet, arbitrarily selected and measured according to age or weight.

Where similar conflicts arise in any field of behaviour, therefore, the wise educationist will constantly ask himself what is truly innate and what conditioned in the behaviour of the child, and what reasonable and adequate or unreasonable and inadequate in the traditional environment. Such an individual approach is in line with the modern democratic concept of education and is most likely to advance our knowledge of the nature of man and to perfect our skill in human relations.

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Hlth. Educ. J., 1947, 5, 2—6

# TOWN PLANNING AND HEALTH*—PART I

By Arthur Ling, B.A., A.R.I.B.A., A.M.T.P.I., *Senior Planning Officer, London County Council.*

The intimate relation between town planning and health hardly requires the proof of statistics ; there is an increasing awareness of the important part which the quality of physical environment plays in producing and maintaining a healthy nation.

Over four-fifths of our population live in urban areas ; no other country in the world has proportionately so many town dwellers. This century has seen a gigantic drift to the towns ; vast new suburbs have sprawled out into the country ; the old business centres have become more and more congested as rising land values have demanded an even greater exploitation of sites ; and parallel with this the central residential areas have become derelict slums because their reconstruction provides no financial return. The journey to work has become longer, increasingly congested and more nerve-wracking. The rare, open spaces have been submerged in the flood of building, and, for the larger towns, the countryside has become almost too remote for weekend enjoyment. For those who can afford to do so, the towns have become places to escape from, while the poor try to forget their surroundings at the local football ground, dog-track or cinema. The greatest monster is that conglomeration of one-fifth of the nation's population in the south-east corner of England known as Greater London.

### *A Fundamental Cause of Ill-Health*

The war has called a halt to this uncontrolled growth and we have been given an opportunity of assessing where we are going. There are welcome signs of a new policy of planning, but it is not going to be an easy task and will require the help of all who are concerned with peoples' health and happiness. Members of the medical profession and those associated with it are in a key position to demand that our towns should be properly planned, for they more than anyone else see, in their surgeries, clinics and hospitals, the consequences of a bad environment. Town planning is one of the best preventative medicines that can be prescribed, for its fundamental aim is to remove one of the root causes of ill-health. How often doctors must wish that they could prescribe a new house, open space, or nursery school rather than medicine. Even if medical treatment temporarily renews the patients' health they know that they are only tinkering with effects while the causes remain.

* Part II of this article will be published in our next issue.

The first essential for health is a good house or flat to live in. You cannot produce A1 citizens in C3 houses. This is an obvious fact, yet as a nation we have been slow to appreciate it. Indeed there was a time when slum dwellers were held responsible for the evils of the slums—it was said that they spent too much money on drink or, in any case, if they had better conditions they would not make proper use of them. But the wonder is not that so many of the slum dwellers crowd to the pubs but that so many of them struggle to make their wretched hovels a home for their families.

### *Overcrowding and 'Sharing'*

According to a survey carried out in 1936, 350,000 families, or about 4 per cent of the families of England and Wales, were overcrowded. The living-room was included as a bedroom for the purposes of this survey, and a house was considered to be overcrowded if any person over ten years of age was sleeping in the same room as a person of the opposite sex, except as husband and wife. With the living-room excluded, as it should be, the survey showed that 850,000 families, or nearly 10 per cent of the families of England and Wales, were overcrowded. In Scotland the position was very much worse ; 44 per cent of the families in Clydebank and 40 per cent in Motherwell were overcrowded, and this was on the basis of including the living-room.

In the County of London, according to the 1931 census, 13 per cent of the private families were living more than two to a room ; more than 47,000 persons were living more than four to a room ; and there was one instance of eleven persons occupying a single room. While overcrowding is the most obvious cause of insanitary conditions, and consequently ill-health, it is not the only cause. The sharing of out-of-date and ill-equipped houses often brings friction between housewives which does no good to their nerves and general health. There are extensive belts of these obsolescent houses around the centres of our towns. The middle and upper classes, for whom they were built, have long since moved out to more salubrious quarters and the poorer classes have, because there is nowhere else, been forced to move in and make do. They cannot afford the rent for the whole house, so they resort to sharing the accommodation. I do not think the extent of this sharing is fully appreciated. For example, in the County of London before the war, and the present position is probably worse, nearly two-thirds of the families were sharing accommodation in non-structurally separated dwellings. In some boroughs the proportion was even higher—in Islington and St. Pancras over 80 per cent of the families shared dwellings.

### *Inadequate Sanitation*

Such overcrowding and sharing is usually coupled with inadequate sanitary provision. It has recently been estimated that 60–70 per cent of the W.C.s in the Borough of Battersea are used by more than one family, while an inquiry among 400 school-children in Shoreditch, selected at random, showed that only 25 per cent lived in houses or flats with separate W.C.s for each family, and in 50 per cent of the cases the closet was shared by a number of families ranging from two to seven. Similar surveys in Shoreditch in respect of water supply, heating and bathing facilities, revealed that in 367 cases one in three had no indoor water supply and that 30 per cent of the families had to carry their water up or down one or more storeys ; from another sample survey it was found that, of 402 cases, nearly half had no means of heating water other than with a kettle, while only 14 per cent had a proper bath, the remainder using a tub or having no facilities at all (two-thirds of the families came within the latter category).

Under such conditions is it not to be expected that the infant mortality, the death rates and the incidence of disease are considerably higher than elsewhere? Compare the infant mortality rate of 92 per 1,000 live births in 1935 for Sunderland, where 20.6 per cent of the working class families were overcrowded, with the rate of 31 deaths per 1,000 for Oxford where only 1 per cent of the working class families were overcrowded. Or consider that 54 per cent of the tubercular families in Jarrow come from overcrowded dwellings. And then remember that for every serious illness or death recorded in these statistics there are thousands who are stunted mentally and physically from an early age in life.

### *The Relationship of Rent to Income*

But bad housing conditions cannot be divorced from poverty as a cause of ill-health, and it is essential to remember this when providing new houses for the poor. However desirable new houses may be, if the rents are too high, if the fares to work take too large a slice out of the families' income, or the income is insufficient to meet the cost of upkeep or furnishings then there will be less to spend on food, fuel and clothes, and the value of good housing will be to a great extent nullified by deterioration in health. The same applies to new improvements in flats such as lifts, central heating, refuse disposal systems, and so on ; these are all desirable amenities, or rather essentials, but if they lead to an increase in the rent without a corresponding increase in income, the result may well be to put the new homes out of the income range of the population for whom they are intended.

I remember a case, during the blitz, of a bombed-out family in London who were removed from what was their former home of two room

into a house large enough to accommodate them without overcrowding ; they were charged the same rent as they were paying previously. When the re-housing officer called, he found the family still crowded into two rooms, the parents and the four children sleeping in one room. It was clear that they could not afford to spend any more money on fuel or furniture to make the other rooms habitable. They had even begun to chop up some of the cupboard doors for firewood. Sheer hooliganism some might say, but poverty is a compelling force. I am not suggesting, however, that we should build houses to suit the incomes of the poor. This problem has been partly tackled in the past in this way by a minimum government subsidy coupled with a reduction in housing standards to the bare essentials as regards size of rooms and equipment. I think it will be found before many years have elapsed that this policy has led us into building future slums. If we are to make a break with this cheese-paring policy we shall have to tackle it in two ways—firstly by securing a general rise in the standard of living of the lower income groups by improved rates of pay, family allowances and so on, and, secondly, by the provision of greater powers to local authorities to house for profit as well as loss ; in the past they have been left to carry out everything that is non-profitable—roads, open spaces, schools, hospitals, main drainage and housing for the poorest sections of the population. Private developers have been free of all these responsibilities and have scooped the profitable work.

We should, however, be deceiving ourselves if we pretended that good housing, or good health for that matter, can be achieved by ingenious administrative arrangements ; fundamentally we have to solve the economic and social problems of a society which has so far failed to achieve a distribution of wealth which will allow a very large section of our people to have the essentials for a healthy life.

### *Gradual Recognition of Town Planning Requirements*

These essentials have only very slowly been recognised as such over the last century. To combat the cholera epidemics which swept the country between 1835 and 1865 the government were forced to take measures to improve water supplies, sanitation and the proper disposal of sewage—chiefly as a result of the efforts of John Howard and Edwin Chadwick. Their work found formal recognition in the first Public Health Act of 1875. Then in 1890 we had the first Housing of the Working Classes Act followed by the Housing and Town Planning Act of 1909. Gradually the scope of the essentials was widening to take in the whole physical environment. After the first world war slum clearance schemes were started and town planning was honoured by a separate Act, and now we have a New Towns Act

which gives us the opportunity of creating completely new communities on a sound planning basis.

It is now recognised that good health does not depend merely on the quality of a house or flat ; it depends also on the community and the city as a whole ; just as it is impossible to live healthily in an untidy, overcrowded slum basement, so also is it impossible to live as a member of a healthy community if there is general chaos in the arrangement of roads, railways, buildings and open spaces. The advantages of the most modern house can so easily be nullified by its surroundings. The most spacious of bedrooms is of little value if the noise of railway trains disturbs one's rest and sleep. Good laundry facilities in the kitchen are rendered ineffective by the smoke of a nearby factory chimney.

This broadening out of the problem from the basic essentials of sewerage and water supply to comprehensive town planning is paralleled by the ministerial changes in authority over housing and town planning ; first the establishment of the Ministry of Health with housing as one of its major health responsibilities, and town planning recognised as a branch of its work, but only as a poor relation ; then at the beginning of this war town planning blossomed forth as a twin partner in the Ministry of Works and Planning, until later it took on ministerial status and the Ministry of Town and Country Planning was set up.

### *Industrial Distribution*

A fundamental aspect of planning to-day is the proper location of industry. In the past it has been left to the individual factory owners to decide where their factories should be, and the existing large cities and towns have acted as magnets for new industry. As a consequence the countryside has become impoverished and former active industrial areas have become depressed. The people have flocked to the towns in search of work and so they have grown to their enormous size. The problem to-day is to restore the balance of population and industrial distribution throughout the country. The Government's programme for the building of 20 new towns and the direction of industry to these, as well as to the former depressed areas now called " development areas," is a bold attempt to solve this problem. Powers of direction are as yet insufficient, for the clause in the Distribution of Industries Act providing for a ban on further industries in certain areas such as Greater London was dropped. We are going in the right direction, but as yet too slowly.

This basic redistribution of population and industry is essential if our congested cities are to be reconstructed properly, for only by drastically reducing their population can we get elbow room to rehouse at reasonable densities, provide badly needed open space, and so give the town dweller a chance to live a healthy life.

Hlth. Educ. J., 1947, 5, 7—11

# HOUSES INTO HOMES

By MARGARET WEDDELL, B.A., B.Litt.,
*Principal, Manchester Training College of Domestic Economy.*

HOMES, as distinct from houses, need careful planning, and even affection, to be a success. The atmosphere of the home depends primarily on the fundamental serenity of the home-maker, and secondly on that of her household. The influence of one person on another is a matter on which psychology has not yet very much to tell us. It is well known to teachers that one woman will have an influence like a benediction on the children in her care; in the charge of someone else, for no apparent reason, there is restlessness and lack of peace. The same curious differences prevail in adult life too. The basic quality which sheds its influence all round seems to be an inner security, something perhaps of the peace which passeth understanding. When this is present the family house is a home in the best sense; and the homemaker, fundamentally at one with herself, is free to care for each of her houshold according to his due. When things are wrong one or other of many causes may lead to the failure: wrong values, for instance, the housewife stressing cleanliness and routine above happiness and kindness; lack of clear thought; omission to alter what is wrong; unspoken and unfaced anxieties. All these lead to difficulties. Often, however, it is possessiveness, or the will to power in petty matters, which brings trouble. Sometimes the handling of tiny children consists of nagging threats not carried out, and an absence of respect for them as persons. In adolescence there is often a perpetual contest between the boy and his father, or the girl and her parents; the girl wishing to grow up, the mother resenting this wish for independence, fearing dangers for her daughter, lacking confidence in her own knowledge of the great realities of life and never once facing the situation as a whole. Another cause of difficulty is the family convention by which all conversation must consist of jibes or mockery, and no serious discussion of anything is possible; the boy must conceal his private study or the girl her puzzled thoughts. Sometimes among adults there is no possibility of privacy. The household custom is to interrupt any conversation and burst into any room. We might also notice how often a member of a family will secure attention or preferential treatment by playing on ill-health, putting forward a headache or cold and refusing the most obvious precautions.

### *Material Needs*

Apart from emotional disturbances, however, the mother can be affected by the lack, or poor quality, of material aids in running her house. Let us first consider the house itself. To-day we seem to have out-grown our former discussions on the relative merits of houses and flats ; we tend to think in terms of the needs of the occupiers. Young people on first going away to work need one type of dwelling, possibly one room each in a hostel which can offer communal meals. After marriage they will perhaps want a small flat ; and later, with little children, a house. Older children will require a house where there is more opportunity for personal privacy. In time, as the children leave home, the parents will want less accommodation, possibly a small flat and, finally, one of them left solitary would possibly want one room for her own things, with opportunity for communal meals and the service of skilled care.

The second material need is one of financial security, to keep away a terrible form of anxiety, which may be caused not only by an income insecure or too small, but often by bad budgeting. I advocate definite budgeting, not only the keeping of accounts. One can waste time hunting for the twopence-halfpenny too much or too little on one's sheet, when meanwhile the whole budget is wrongly planned. Too much may be spent on rent or, rather surprisingly, in some cases too much on insurance, and life becomes difficult through an effort to live on what is left after paying too heavy a premium. Most frequently, however, the cause of the insecurity is the failure to realise how large a sum is frittered away on " what the mice get," as it has been called. Training in matters of money might begin by realisation on the part of parents that there is a fundamental benefit to children in a regular allowance which they are encouraged to use sensibly. They should be trained and helped to make little savings in preparation for a future purchase. Usually the purchase should be an early possibility or the child loses heart, but casually supplementing his allowance or giving in to clamorous petitions are not good habits. On the other hand to discuss with the child the choice and the care of clothing is a good thing, and a thoughtful habit can thus be fostered. Older boys and girls can be helped to understand what things cost, and as soon as possible the girls, especially, should be given a dress allowance and required to make it adequate.

The third item under material aspects is effective equipment. Men craftsmen seem more sensible than women in insisting on having good tools. Women often waste their energy through using bad or ineffective tools, from a false idea of economy. Effective requisites would include the means of heating both house and water, equipment for cooking and

laundry work, a wide range of utensils for cooking, washing and cleaning, and arrangements for storage. Many a household has a constant source of irritation in an inadequate water supply, absence of storage for the bicycle, or the perambulator or the winter eiderdowns. How delightful it is to look forward to the well-thought-out equipment for these purposes, which we hope is now being planned by experts.

Some of the housewife's heavy work is due to war difficulties and cannot be helped at present, but much of it even now could be lessened if rightly tackled. I recently hung up her coat in the wardrobe for an old lady and commented on the inconvenient height of the pegs. "Oh yes," she said, "I have sometimes nearly wept with exasperation at not being able to hang up my things." Never in the fifty years since her marriage had she been drastic enough to have the pegs lowered.

The labour and dirt of constant coal fires is another matter we English tend to take for granted, to the disadvantage both of ourselves and of the atmosphere.

Before leaving the topic of equipment I must mention the desirability, especially for the young people of the family, of having heated bedrooms or centrally heated houses so that these rooms may be used for study or for companionship or privacy. Many frayed tempers must result from our English custom of "living on the family hearthrug," to quote a Frenchman.

The fourth material aid is domestic help. Bad conditions and a mistaken attitude to domestic work have brought about our unfortunate position to-day, intensified of course by war conditions. We hope that before long private or municipal schemes will again be started, as they were beginning to be before the war, whereby reliable domestic workers can be secured for two or more hours' work per day or per week. Even with such help, however, it seems to be desirable that each of us in a household should contribute far more than formerly towards the running of it. To the boy of ten washing is a nuisance and the cause of a daily wrangle. In a few years, however, personal hygiene becomes a matter of routine. The same is true of the care of one's room—stripping the bed and later making it, keeping one's room in order, putting away one's possessions, sharing the work over communal matters like meals—all of these habits can soon become automatic. In many households the housewife is overburdened and, alas, irritable in consequence, because her daily round is a tread-mill caused by other people's lack of help.

### *Knowledge, Skill and Organisation*

Material aids alone, however, can never make a home. They must be intelligently and skilfully applied, each taking its place in a well-organised whole. Cookery based on a knowledge of nutrition is an important

matter, and many a house-proud woman, as well as many a careless one, gives too little time to the subject. The French-woman seems to be far more meticulous than the English-woman in caring for her equipment, in knowledge of the nature of the ingredients she is going to use and in readiness to give time to their right selection and preparation.

It has been said that the quality of English food-stuffs used to be so good that little skill was needed to make them palatable, but nowadays qualities have altered. What is needed is not skill in making elaborate dishes but good standards in relation to simple fare, so that such things as soups, stews and roasts, as well as milk puddings and vegetables, shall each be excellent of its kind. Many of us know houses where even an ordinary dish like boiled potatoes is always badly served. The cooking never improves, for the cook is not interested.

I should like to mention with admiration a recent publication of the Ministry of Food, *The A.B.C. of Cookery* (His Majesty's Stationery Office. Price 1s.). This book gives knowledge and guidance on general lines rather than quick reference to facts. The housewife should study it carefully, read it, think over it and practise it, as the student does his textbook.

In regard to nutrition, expert knowledge has leapt ahead in the last twenty years, and in the last six most of us have become much more familiar with its findings. The housewife will find that it repays her to give time and thought to the information on nutrition, which is now given at many sources ; and an equal amount of thought to methods by which she can induce the family to eat those foods which she knows they need.

Knowledge of colour and design in our homes is a matter we descendants of English Puritans tend to neglect. One could make a parallel between honesty and sincerity of thought in deeds, in clothes or in household appointments. Wise people dislike, in all three, pretentiousness, silliness and insincerity. Many people would realise that to clothe a little girl in a tawdry, showy frock would have something deeply undesirable about it. Yet often the same people will not follow their soundness of instinct so far as to prohibit imitation coals in electric fires, teapots that represent cottages, objects overladen with decoration, or a restless litter of unnecessary trifles about the room.

A large number of homes are spoilt for want of good organisation of the daily routine. The time needed for daily cleaning and preparation of food, for such matters as ironing, mending, shopping and special cleaning that occurs once or twice a week, should be planned and known, and the whole brought into a workable programme. In most houses a vigorous daily routine promptly begun and strictly adhered to is one of the first essentials for success. It should insist upon times for rest and, as far

as possible, a time to finish, even if this should mean the elimination of much desirable polishing and cleaning.

Home-making is a difficult art. Troubles are various, and small matters may, like grit, disturb the smooth running of the family machine. It is worth infinite care, however, for the children at home will inevitably lay the foundations of their future personalities ; while for grown men and women a real home offers what the oldest, as well as the youngest, of us needs, a deep-seated sense of security on which to build our lives.

## HYGIENE FOR FOOD HANDLERS

In view of the recent interest in diseases spread by food, and the publicity given to epidemics of typhoid fever traceable to food handlers, the Central Council for Health Education has been making plans to give courses on Hygiene for Food Handlers.

The Council has been very fortunate in this to have the expert advice of Dr. Robert Cruickshank, Director of the Central Public Health Laboratory, and the welcome co-operation of the medical and other officials of a well known firm engaged in catering and food distribution.

Two types of personnel will be given lecture-demonstrations. A course of three sessions will be given to senior personnel, such as catering managers, kitchen superintendents, etc., in groups not exceeding twenty. These lecture-demonstrations will show (1) The nature of the problem, with bacteriological demonstration, (2) The food handler's part, with a drill technique, and (3) Essentials of kitchen hygiene.

The other type would consist of one session to be given to larger groups of junior workers, such as kitchen hands, waitresses, etc. These would follow soon after the end of the three-session course, and would be designed to help the senior personnel in their regular supervision of those under them in putting into practice the highest standards possible.

It is hoped that the first course to senior personnel will be given by Dr. Robert Cruickshank in January, and that as a result of that experience it will be possible to hold similar courses in centres all over the country.

Hlth. Educ. J., 1947, 5, 12–15

# WORLD ASPECTS OF NUTRITION*—PART I

By H. E. Magee, B.Sc., M.B., B.Ch. (Belfast), D.Sc.(Aberdeen), *Deputy Senior Medical Officer (Nutrition), Ministry of Health*

The world food situation is at present passing through a phase of shortage which is dominated by the need for energy-giving foods, and two matters emerge from this as of supreme importance—how can we obtain from the soil the maximum amount of energy-giving food in the form most suitable for human consumption, and what is the minimum amount of food on which the human body can subsist?

In the first place, we have to answer the question whether it is generally more profitable to obtain our energy in the form of animal foods or in the form of vegetable foods. This question, fortunately, is not difficult to answer. It is, in fact, physiologically impossible for an animal to convert all the energy it consumes in its diet into animal foods which can be used for human consumption. This principle is not so important when we are dealing with feeds, grass, for example, which cannot be consumed by man, but it becomes supremely important for foods, such as wheat, which are consumed by man and farm animals alike.

In the conversion of vegetable foods, whatever they may be, into animal foods such as meat, eggs and milk, a certain amount of the energy present in the food consumed has to be spent in keeping the animal alive to maintain its heart beat, for respiration, for muscular work and to combat cold. Energy spent in this way must come from the food consumed and it is lost as far as food for man is concerned. Some of the food is transformed into inedible material such as bones, teeth, hair and skin, but many of these and other inedible products such as wool and skin are indispensable to man.

### *Converting Animal Food into Human Food*

The most efficient converter of vegetable food into animal food is the dairy cow. Milk is by far the best of all known foods and it is all edible. It has no inedible protein like skin and hair or minerals like bones and teeth. All its nutrients are in a form which can be fully and readily utilised by man.

Next in order of efficiency as a food converter is the laying hen. The egg has a relatively small proportion of waste material in the shell and membrane. The pig is also a good converter, nearly as good as the hen ;

* In his second article, Dr. Magee will discuss the consequences of the present situation and will look beyond the phase of shortage.

it rapidly transforms starchy food into fat and it is usually kept indoors so that the proportion of food used to maintain the body temperature is relatively small. Moreover, the proportion of hair, skin and bones relative to the edible material is also small. The hen and the pig, however, are at a disadvantage as converters in that the bulk of their food must be in the form of concentrates, for example, oats, barley and potatoes, which are also foods for man. When it is a question of getting every possible calorie we can from the soil, we cannot afford to divert much food for making inedible and useless things, such as the shell of an egg. This is an argument for reducing the numbers of pigs and poultry, but not one for eliminating them altogether, because pig flesh and eggs have very important places in the diets of civilised people. We must remember, too, that certain fatty acids which are present in pig fat and eggs, as well as in other animal foods, are indispensable for man. Moreover, some pigs and poultry can easily be maintained on any mixed farm without encroaching to any significant extent on the grains, potatoes and other foods suitable for human use. The tails of grain, chat and damaged potatoes are best used for feeding pigs and poultry.

It follows then that the dairy cow is the best all-round farm animal for converting vegetable into animal food. The purely beef animal is a much less efficient converter. But if we eliminate the purely beef animals, beef production would not cease, because there is bound to be some produced as a by-product of dairying. Indeed, before the war, farmers in several European countries produced beef and veal only in this way, and not as a specialised beef industry. With abundant supplies of milk, the feeding of children and mothers would be largely safeguarded and there would, in addition, be quantities of meat depending on the size of the dairy herds. Meat would also be obtained from sheep which would be maintained on hill and other pastures unsuitable for cattle.

It is clear then that we can only recover from animals in the form of animal food a fraction of the total available energy given to them in the form of vegetable foods. If animal foods such as milk are given to animals, the proportion recovered is little different. For instance, before the war it was the custom (I believe it has now ceased) to give skimmed milk to pigs and poultry. Farmers valued it because it made the pigs grow rapidly and made the hens lay more eggs. Against the yield of eggs, for instance, on the credit side there has to be placed the food necessary to keep the hens alive and active, to renew their feathers and skin and other tissues and to form shells and membranes for the eggs. Much of the nutritive value of the skimmed milk was used up in this way. Similar losses in nutritive value take place in passing skimmed milk through the pig. Obviously, when people in various parts of the world are short of food, especially of milk, this practice should not con-

tinue. Even in peace-time there is little justification for it, at any rate, so long as there are millions of people, as in China, who never see cow's milk. There is still less justification for turning skimmed milk into buttons, ornaments and similar things, or for running it to waste. Before the war vast quantities of skimmed milk were run to waste by many countries calling themselves enlightened and charitable. Indeed, so much was run into the sewers in this country that grave problems in sanitation arose. In short, to feed skimmed milk to pigs and poultry is a wrong use of a valuable food, to manufacture it into ornaments, etc., cannot be justified and to run it into sewers is nothing short of a nutritional crime.

One of the strangest phenomena at the present time is the low estimation in the public mind of the food value of skimmed milk. That it is of very high value has been shown abundantly by many feeding tests, but such tests should have been quite unnecessary, because we know that milk is nature's food for the young mammal and skimmed milk differs from whole milk only in the absence of fat and fat soluble vitamins. The Food and Agriculture Organisation (United Nations) at its conference last May recommended that all skimmed milk should be reserved for human consumption. Skimmed milk can be used most conveniently in condensed or dried form.

### *The Lower Nutritive Value of White Bread*

The Food and Agriculture Organisation also recommended that wheat should be milled to the extent of at least 85 per cent of the grain. There has been much uninformed discussion about the dangers of eating bread made from high extraction flour which is rich in phytic acid. The people of Denmark have always eaten bread made from 100 per cent extraction flour of rye and wheat. No one would say that the Danes are not a civilised, intelligent and progressive people. Their public health record is a very enviable one, and rickets is extremely rare in Denmark.

The experimental work of Mellanby and McCance on the relationship of phytic acid to the metabolism of calcium and iron has been often misunderstood. They showed that the absorption of calcium and iron is inhibited by phytic acid, but this effect they demonstrated could be counteracted by additions of calcium to the diet. This has been done in this country. All our bread contains enough additional calcium to remove any serious risk of disorganisation in the assimilation of calcium and iron. Moreover, recent work in South Africa has shown that the human body can adjust itself in three or four months to a very high phytic acid content in the diet, to such an extent as to counteract the harmful effects of the phytic acid without any additions of extra calcium.

Much has been made, too, of the alleged preference of the public for

white bread. The protagonists of this view, however, forget or ignore the fact that all our children from five years down have never seen white bread such as we had before the war, and there is no evidence that the children are any less healthy or any less happy than pre-war children of the same age. In fact, all the evidence points in the opposite direction. What is of supreme importance now is that we should secure for human consumption the maximum food value of the wheat. We can assure this by using for human food all the wheat except the very coarse bran ; in other words, by using flour of 85 per cent to 90 per cent extraction.

In short, it is imperative in the present emergency that all wheat should be milled to the extraction which will secure for human consumption the maximum food value, and even when the days of abundance come we should, as a matter of health policy, continue with the same high extraction rate. There is no question that the whiter our bread the lower its nutritive value, and it is rather silly to give the most valuable parts of the wheat to animals and reserve the worst part of it for our own use.

## BIOGRAPHICAL NOTES

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Hlth. Educ. J., 1947, 5, 16—19

# DIET AND DENTAL HEALTH

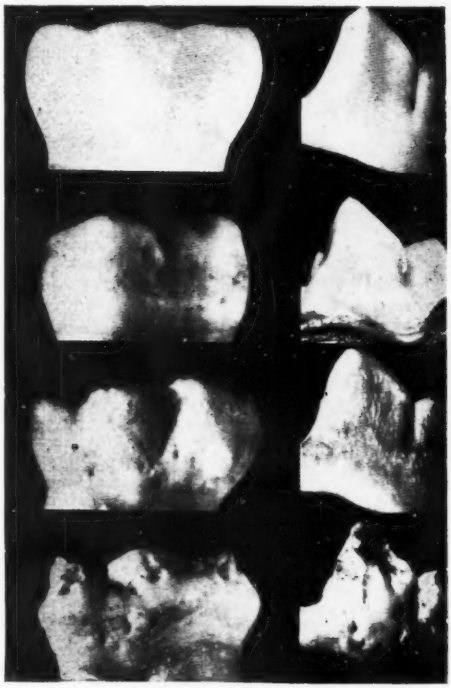
By Lady May Mellanby, Hon.D.Sc. (Sheffield and Liverpool), *National Institute for Medical Research.*

Very few people in this country are free from disease of the teeth or gums—a depressing thought. There is, however, a brighter side to the picture. Early in this century well over 90 per cent of children in Britain were said to have some decayed teeth, and even in the 1920's the position was not very much better ; but during the last 15 or 20 years there has been a gradual improvement which has speeded up during the war—an instance of good coming out of evil. For example, whereas less than 5 per cent of large groups of 5-year-old London elementary school children examined in 1929 had no demonstrable decayed (carious) teeth, the number free from the disease had risen to 22 per cent in comparable groups in 1943 (fourteen years later) and to 26.5 per cent in 1945. Moreover, the percentage of children whose teeth were of good structure, according to the standards used, which were the same throughout—an important point—rose from under 8 per cent in 1929 to over 19 per cent in 1943 and to about 22 per cent in 1945. The improvement in the last of the investigations was emphasised when a detailed comparison was made with the 1943 investigation. A very significant finding was that the proportion of carious teeth in which disease had been arrested was almost twice as high in 1945 as in 1943.

### *Meaning of Good Structure*

Dental textbooks usually say that a very small percentage of deciduous human teeth are defectively formed, or hypoplastic, and the defects they describe are easily visible to the naked eye even when the teeth are in the mouth. When I first examined children's teeth under the microscope after they had been sectioned, however, I found that approximately 85 per cent showed defects of varying degrees and that these internal defects were associated with external faults, such as roughness or uneven texture of the surface enamel. These surface abnormalities were relatively small and were not always visible to the naked eye when the teeth were still in the mouth and covered with saliva, but with practice could readily be felt when a probe was rubbed lightly over the tooth surface. To distinguish these defects from the textbook variety described by dental surgeons, and rarely found in deciduous teeth, Dr. J. D. King referred to them as Mellanby- or M-hypoplasia, and the more generally recognised forms as gross- or G-hypoplasia. In the investigations of my

## Enlarged photographs of the surface enamel of human and dogs' molar teeth




*Molar teeth of four children* — *Molar teeth of four dogs*

(*a*) and (*e*) *Good structure ; smooth and shiny.*
(*b*) and (*f*) *Slightly defective structure ; some roughness.*
(*c*) and (*g*) *Very defective structure ; rough.*
(*d*) and (*h*) *Grossly defective structure ; comparatively large areas of deficient enamel.*

*The dogs from which the teeth* (*e*) *to* (*h*) *were taken had different amounts of fat-soluble vitamins, especially vitamin D, the dosage being progressively reduced, so that* (*e*) *had an abundant supply and* (*h*) *very little. By analogy, and on the basis of a few investigations on children whose diets were controlled, it seems reasonable to assume that the different types of enamel in these human teeth* |(*a*) *to* (*d*)| *are also due in the main to variations in the fat-soluble vitamins, and especially vitamin D, available at the time of their development.*

Chaos in Town Development

*(See article on page 2)*

colleagues and myself a tooth is described as of good structure only when it shows neither M- nor G-hypoplasia.

### *Structure of Children's Teeth in Relation to Decay*

Our research has shown that in this country the majority of children's deciduous teeth are defective in structure when measured by these standards and that the resistance of the teeth to disease is related to their structure. That is to say, the better the build or minute architecture of the teeth, the more likely they are to resist attack by caries. This seems commonsense, but on the old standards for structure this correlation between structure and caries was said not to exist. It is probable, however, that dental surgeons who state that there is no such relationship recognise only the gross- or G-hypoplasias and disregard the much more common, but usually less apparent, M-hypoplasias. Great confusion has arisen because of this.

### *Dietary Factors Required for the Production of Teeth of Good Structure*

Animal experiments and investigations on children have shown that the chief factors required for the production of well-formed teeth include a sufficiency of calcium, phosphorus, and vitamins D and A, which are usually deficient in most ordinary diets, and that these same dietary factors consumed after eruption of the teeth tend to retard the onset of caries and to arrest the disease when present, whatever the structure of the teeth. If vitamin D and calcium supplies are deficient, other food factors assume a greater importance than when these substances are abundant. For instance, cereals, because of their phytic acid content, may under these circumstances be harmful from the point of view of the teeth as well as of the bones.

### *Arrest or 'Healing' of the Carious Process*

The active carious area in a tooth is usually soft ; but sometimes the affected part is quite hard and may even have a smooth and polished surface. The carious process is then said to have been arrested or 'healed.' If a thin section of such a tooth is examined under the microscope it will in most cases be seen that a large barrier of newly formed dentine has been deposited between the primary dentine and the pulp in the region of the original carious attack. This so-called secondary dentine is usually well calcified. On the other hand, when caries is active there is either little or no secondary dentine deposited or that laid down is badly calcified, suggesting, on the basis of animal experiments and other investigations on children, that there has been a relatively low calcium and vitamin D intake.

### *How Do these Facts Relate to the Observed Improvement in Dental Condition?*

Though the investigations under consideration were not controlled in the way that animal experiments can be regulated, the groups of children examined can be regarded as roughly comparable. The main point of dissimilarity, as far as could be seen, was that the 1945 group had been subjected for a longer period to the war dietary than the 1943 group. It therefore seems that the improvement in the dental condition of 5-year-old children during recent years is not accidental, but is related to some factor or factors in the children's diet or environment.

There are various widely-held theories as to the cause of caries ; for instance, some people assert that carbohydrates, and especially sugar and sweets, play a dominant part in the initiation of the disease, others that poor dental hygiene is responsible, and yet others that heredity is important. These views are based more on ' clinical ' assumptions than on scientific and statistical evidence, and none of them to my mind provides a solution of the problem. What of the nutritional aspect?

There is no doubt that the diet of the majority of people in this country, and especially that of the children, is far better to-day than it was, say, 25 years ago, though even now there is ample room for improvement. During recent years, and particularly during the immediate pre-war and the war years, pregnant and nursing women, infants and children have been encouraged (a) to take more milk and eggs and so to obtain larger supplies of calcium and phosphorus as well as of vitamins D and A, (b) to take vitamin D- and vitamin A-containing substances, either as cod-liver oil or as one of the proprietary products, and (c) to eat more potatoes in place of cereals. Moreover, for a number of years now vitamins D and A have been added to some brands of margarine, and since the early days of the war (1940) this has been made compulsory for all margarines. Again, calcium was added to some flours before the war, and since 1943 the addition has been a routine measure.

The evidence therefore suggests that the improvement in dental condition of 5-year-old children during recent years is directly related to the enrichment of their diet in calcifying properties. The children examined in 1943 showed a great improvement on the 1929 group, and the 1945 group, who had received the dietary supplements for longer periods than their predecessors in 1943, showed an even greater improvement. Their teeth were not only better formed and less carious, but a greater percentage of the teeth that had been attacked by caries had set up a resistance, as a result of which the carious process had been arrested. The advantage of this natural ' healing ' of carious cavities over treatment by filling or extraction is obvious. There was less dental treatment in 1945 than

in 1943 ; tooth-brushes were more difficult to obtain, and the consumption of sugar and sweets had not diminished in the intervening period.

Taking all known facts into consideration, it appears that it is by altering nutritional standards that we are most likely to improve tooth structure and reduce and arrest caries ; and it seems that the incidence of dental disease could be further greatly reduced if diets rich in calcifying properties were consumed by everyone, but especially by *all* pregnant and nursing women, infants and children. Even to-day, despite the efforts of the Ministries of Food and Health, a large proportion of mothers do not know and are not told that such diets are important, and, although there has been the definite improvement described, over 70 per cent of London public elementary school-children between the ages of 5 and 6 years have some decayed deciduous teeth. Moreover, I have figures which show that there are other parts of the country where the situation is worse. We still have a long way to go, therefore, before we can guarantee dental health to every child. Until then dental surgeons must do all in their power to right the wrongs caused by our lack of knowledge and faulty diets, and research must continue.

The suggestions I have made for improving our dental condition are simple and would have a beneficial effect on the general health of the nation as well. Unfortunately scientific knowledge is not often quickly appreciated and adopted in practice, and before great strides in this direction can be made dental surgeons and doctors, as well as mothers, must be educated. Here then is a worthwhile field for health education.

## BIOGRAPHICAL NOTES

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Miss MARGARET WEDDELL, B.A., B.Litt., author of *The House Book* (John Murray) and articles for *Housecraft*, after many years' teaching experience became tutor on the staff of the Cambridge Training College for Women and later of the Manchester Training College of Domestic Economy, where she has been Principal since 1936.

Hlth. Educ. J., 1947, 5, 20—23

# ACTIVITY IN EDUCATION

By R. E. Roper, M.A., M.Ed.,
*Specialist in Educational and Remedial Gymnastics.*

Why do parents send children to school, apart from the fact that the law says they must? What do they think is the use of schooling, the main purpose of education?

"Train up a child in the way he should go, and when he is old he will not depart from it." Instead of being out of date after 3,000 years, the old proverb has been brought up to date. The way now leads through learning to earning. It has been surveyed and graded and surfaced so that children can cover more ground in less time. It is split into stages, 2-5, 5-8, 8-11, 11-14 (this last lap is to be made longer). For most of them, this is journey's end. Some who stay the course may make a further spurt from 15-17, and of these a chosen few may be able to go on learning at a college or university. They finish their bodily growth at about 22-25.

### *Learning or Wisdom?*

Generally speaking, children work as hard as they can for as long as they can. Out of school many do homework: after fourteen some attend evening classes. All along the way, effort and progress are noted and marked by parents, teachers, inspectors, examiners, employers. Those likely to profit by secondary education (that is, to repay the cost of further learning) have been picked out quite early. There are incentives and rewards, marks and badges, reports—good and bad, places in class or in teams, changes of school, certificates. The more you learn the more you earn.

Not all children always keep to the road: some go wrong or do wrong. Those who lose the way may need to be corrected. A second ancient proverb says, "Withhold not correction from the child. . . . Thou shalt beat him with the rod and shalt save his soul from hell." Nowadays different treatments for 'original sin' are becoming fashionable, but belief in the crude old remedy dies very hard. For extreme cases, of course, and for wilful error: ordinary children jog along together contentedly and take things more for granted.

A bird's eye view of schooling shows how training a child has been brought up to date. It aims at learning rather than wisdom, a patterned learning, more vocational and specialised as the time for wage-earning approaches, more prolonged and insistent in secondary schools—where some pupils may be taught by seven or eight teachers a week, and the

curriculum looks like a crazy pavement or a patchwork quilt. With this increased demand for mental effort comes a decreased appreciation of the needs of growth and of physical well-being.

Constant repetition of standardised processes of mind and body may even hamper those of the spirit. Whether this be the case or not, our idea of children as future cogs in the machinery of industry and commerce differs so widely from the opinion of Christ that " of such is the kingdom of heaven " that the two may seem to have nothing in common. At any rate, we might do worse than review our concept of the nature of childhood before we plan its training.

### *Creation of an Individual*

When ripe, the human egg leaves its original home and—after being fertilised—finds a place in which to settle down and grow. It is already a distinct being, to whom its mother is host. Early stages of its growth consist of division and subdivision into parts. This process is beautifully shown in the film " Sea Urchin,"* each part in its separate envelope or membrane, its contents revolving in one direction and then, apparently, in another, each quite literally a moving creature that hath life, to use a phrase from the account of the Creation in the Bible. The various parts combine to develop into an individual, itself able to move as an individual even before birth. When born, it lives and learns through movement, touching, sucking, breathing, grasping, seeing, making sounds, realising and recognising objects and other living beings. Its way of moving is always its own, a little different from someone else's, its own technique of action, a sign of its personal way of life. Behind it lies a prehuman history of evolution (and of the co-operation without which evolution is impossible), before it a period of experience and experiment in which it continues to evolve. It teaches itself to crawl, to stand, to balance, to walk. Its interest in other living beings and in things which move is enormous. It needs to do, to handle, to take to pieces, to know, to understand, to make, in a word to evolve. The chief purpose of education should be to provide conditions suitable to further evolution and to enable the individual to use them. Itself a creature, it has the power to create, and is to that extent divine.

### *Changes in 'Size' and 'Style'*

Grown-up people tend to think of children's activities as play. From the point of view of growth, play and work are the same. Both spend energy, and energy when spent must be restored. Rest and activity should alternate in rhythm. Up to eleven, growth shows more in height

* Gaumont British Instructional, Ltd.

and, later on, in weight. When marked on a chart, this height-weight increase shows an uneven line, with ups and downs, gains and losses, a seasonal rhythm. The ups and downs vary with individuals: they should not be too abrupt. Sudden changes often show disturbances in growth, energy being spent too quickly, or unwisely, and the rhythm of activity and rest may need to be rearranged if the activity is not to be spoiled. There is a period about 10-11, and another about 15½-17, where this may happen.

Height-weight growth shows changes in structure (size). There are also changes in function (style). The former has more to do with bones and muscles, the latter with nerves and their habits. Take a simple example. With left lower arm on a table, palm downward, clasp it lightly below the elbow with your right hand, the thumb under and fingers above it. Raise your left hand (fingers straight) from the table and lower it again: you will feel muscles moving below your right-hand fingers. Next roll the left hand over, palm upward. Raise it as before and lower it again: you will feel muscles working under your right thumb. The first set of muscles stretch the left wrist, the second group bend it: they work in opposite ways and are therefore called antagonists. When one set works the others relax: when both work at the same time the wrist is fixed, stiff, rigid. Your nerves send messages to the proper muscles, to stretchers or benders or to both at once, as required: this is called muscular-nervous co-ordination. If all is in proper order, energy is properly used, not wasted. Tiny children develop this co-ordination for themselves: they can relax, using only the muscles they need. Older children often make mistakes and move stiffly or jerkily, too fast or too slow, too little or too much (for example, a child who grasps its pen too hard). This may be due to trying too hard, to misunderstanding, carelessness, anxiety or even fear. Style of movement is a useful sign of nervous harmony or discord.

### *Integration*

The newborn child first learns about its new world through moving and touching. It takes in nerve messages from outside and sends them from inside. These it has to sort out, connect, remember, use. Its daily life is a series of experiments, from which it gradually develops links between itself and its surroundings. It is curious, interested, active for short periods and then apparently inactive. Gradually its activities become more purposed, its movements less vague, more definite, more controlled. Through finding something it likes to do and trying to do it, it becomes more integrated, more of a unity, a whole. This is of enormous importance not only in infancy but later on. It is not just 'having its own way': it is forming a habit of focusing its energies

upon a purpose. What matters is not so much what a child does as what happens in the child whilst doing it. Constant practice in harmonious concentration on what one most wants to do develops a technique, a way of living, which can be used in doing what one has to do. Such focusing of energy on a self-chosen purpose is the shortest way to integration. Behind all these activities, and many more, are the processes of growth, for which proper allowance must be made. Building a body whilst using it is quite hard work, which cannot be cut up into lengths of time like schoolwork, but goes on day and night. The needs of growth are not to be neglected if integration is to be complete.

### *The Right to Choose*

When children first come to school, the simplest way to start their education would be to ask " What would you like to do?" " How can we help you to do it?" Here at once would be their chance to choose, to find a purpose for their creative will, to experiment. Education would be evolution, a marvellous adventure in which to try now this, now that, to discover their preferred activity—and the second best or even third which might prove better than the first. What one does best is not always what one likes best: it is often much more interesting to try to do something one can't quite manage. Children are apt to have ' a concern ' to overcome a difficulty. Through choice, through experiment, their self-controlled and focused energy becomes a power they can direct on any task which comes to hand, versatile, adaptable, invaluable in a changing world. The integration which springs from harmonious activity is the very basis of health, whether of body, mind or spirit.

Only a short-sighted unimaginative schooling would aim at training children in the way they should go so that when they were old they could not depart from it. An education worthy of the name would be so planned that they might have life and have it more abundantly, and that age could not wither them nor custom stale their infinite variety.

## BIOGRAPHICAL NOTE

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Hlth. Educ. J., 1947, 5, 24—26

# V.D. . . . CINDERELLA? . . . OR BOGEYMAN?

By Harold Thomas, *Senior Orderly, V.D. Clinic.*

Since September, 1905, when, in my sixteenth year, I was employed by a doctor " to learn dispensing " and dispensed my first prescription for Mist. Copaiba, Lotio Hg. Perchlor., and rubber bulb syringe for a case of gonorrhœa, I have been in fairly constant association with venereal disease work in Army and civilian life. Enough experience, I think, to justify the hope that this expression of my views on the health education side of the V.D. problem may be of interest to many readers of the Journal, possibly provide amusement to some, but, I trust, give offence to none.

## *A Recent 'Discovery'*

To those of us who have worked and are working on the treatment of cases of venereal disease it does not seem so apt to-day as it may have done some four or five years ago to call us " The Forgotten Army." During those last few years V.D. has been discovered as the Cinderella of general medical and nursing studies ; as a subject worthy of the attention not only of doctors and nurses, but psychologists, economists, sociologists and members of almost every branch of science connected with the moral, physical, and social welfare of the public. Perfectly *astounding* discoveries have been made in these last war years which must, I suggest, have caused some quiet amusement to those more senior officers in our " Forgotten Army," and I admire the restrained manner in which these officers have lately been pointing out to their less well-informed colleagues their long acquaintance with this belatedly recognised Cinderella, who is now apparently to be included in the family of more ' ordinary,' ' respectable ' diseases.

I am tempted to air my views on the effect which the outlook of doctors and nurses has had on the physical and social well-being of the public, but, as an orderly whose views might be somewhat impatient, I had better leave that part of the subject to my superior officers except to say that, by their there's-little-we-can-do-about-it attitude, or by their obvious fears of contagion when dealing with cases, many doctors have done less than they might to stamp out congenital syphilis by intelligent follow-up of contacts through family history. Since Ehrlich's discovery of salvarsan in 1909 doctors and nurses have had up-to-the-minute news of progress in diagnosis and treatment of venereal disease available in their textbooks and periodicals, yet it has taken them years to realise that what they apparently regarded as a nuisance-waif or as a bogeyman is

really worthy of their more studious attention. I hope that as the example in outlook set by the members of these professions to the lay public improves their more enlightened outlook will have a good effect upon V.D. propaganda methods in the health education of the public.

### *Out-of-date Propaganda Methods*

With all the respect due to those hard-working, little-appreciated people who have between the two world wars tried to awaken public interest in the V.D. problem, I cannot help thinking that the methods employed then, and more recently, have been sadly out of tune with the progress of specialist medical knowledge of the subject. The driving force behind this propaganda has been " The bogeyman will get you if you don't watch out," while propagandists seem to have overlooked the fact that several millions of men and women have rubbed shoulders with that bogeyman during the two world wars, either as victims themselves of V.D. or by close association with people who had been infected. Faced up to, they have found the bogeyman not so very filthy or disgusting or so *obviously* deadly as propaganda would have had them believe him to be.

Propaganda methods should be brought more nearly into line with ordinary commercial advertising which, realising to the full the disease-conscious mind of the public, not only stresses the evils likely to occur through failure to recognise signs of disorders of the skin, the digestive or other systems, but places even greater emphasis upon the stupendous, the marvellous, the truly colossal benefits to be gained by use of the remedies the advertisers have to offer. We have had a known cure for syphilis for over thirty years ; we have had sulphonamides as an aid to natural resistance in the treatment of gonorrhœa and, for the last two years, we have had penicillin which, in the vast majority of cases, will render victims of gonorrhœa or syphilis non-contagious within a few hours after commencement of treatment.

Haven't we then something better to offer to the public than the generalised rash of bogeyman warnings which broke out on our advertisement hoardings and in the newspapers early in 1943 and which only faded out a few months ago? " V.D. A GREAT EVIL ", " V.D. A GRAVE MENACE " in startling headlines. Grim stories of the results of neglecting treatment in " Notes from a Doctor's Diary." All very true, but all perpetuating the bogeyman outlook on the problem.

Tucked away at the bottom of the placards, or somewhere in the text of the " Doctor's Notes," could be found, by those who read very carefully, a grain of encouragement in the advice to seek early medical advice and treatment, which, at the special treatment centres is " Confidential and Free of Charge." There was nothing in headlines or even in thick

type calculated to help to break down that greatest of all barriers to the stamping out of venereal diseases, the barrier caused by the victim's fear of ostracism by a public with a centuries-ingrained horror of these "filthy, disgusting" diseases. Dependence upon improved moral standards or upon absolutely efficient V.D. prophylaxis is, very largely, an unattainable idea.

### *Why Not Emphasise Success?*

The only *practical* means of reducing the incidence of venereal disease (and I claim no originality for the suggestion) lies in the location and treatment of infected persons. In an effort to achieve this it seems rather futile to keep only the most distasteful aspects of the problem foremost in the public mind. And, if a long-term view of propaganda is taken, it should be borne in mind that during our most recent war there has been much experimental treatment of syphilis. These experiments will be valueless to medicine and to humanity if treated persons fail to attend clinics for tests of cure. Though these patients have been warned by Services medical authorities of the great importance of these tests, there is plenty of evidence to indicate that they would far rather face the possible effects of insufficiently treated disease than the probability that, if seen attending a clinic, they will suffer the ostracism of a public who may well be less respectable in their morals than the possibly less fortunate should-be clinic patients, but whose minds are propaganda-filled with thoughts of This Great Evil, This Great Menace, etc.

Adult members of the public to whom health education on V.D. is of the greatest value have, in the main, been participants in one or other of our two world wars, and so are sufficiently grown-up to have possible dangers explained to them in an encouraging manner. If news of the progress made in the treatment of rheumatism, tuberculosis or cancer equalled in encouragement that available about venereal disease, that news would gladly be disseminated by every possible means. Why then are the public not told more of the truly marvellous progress made in the treatment of their bogeyman?

Greater publicity should be given to *success* and less to what happens to failures. Try to persuade the public to regard venereal diseases as what they really are: dangerous and contagious, but ordinary, readily curable diseases, the incidence of which can, and will, be reduced to the minimum of smallpox, plague and other scourges of the past. Then, I believe, the ordinary man and woman, and even those not-so-ordinary persons who are editors of our national newspapers, will join doctors and nurses in their present studious appreciation of the interesting discovery of the metamorphosis of V.D. from a terrifying bogeyman into a brand new Cinderella.

Hlth. Educ. J., 1947, 5, 27—31

# THE FUTURE OF PHYSICAL EDUCATION

By J. P. WALKER, *Organiser of Physical Education, Middlesex County Council Education Committee.*

PHYSICAL education is acknowledged as a practical and important part of health education, and it is not suprising that a body of experts, the National Association of Organisers of Physical Education, should state in a recent pamphlet that the first direct aim of physical education should be " to secure and maintain high standards of bodily health, physique and vigour."

There are other direct aims such as the development of qualities of character, high social ideals and team spirit ; the fostering of an appreciation of the joy of physical fitness ; the development of easy and graceful bodily movements ; the development of special motor skills ; the correction of bodily distortions. But these, in their turn, aim to secure and maintain a high standard of physical efficiency.

The extent to which these aims may be realised is partly determined by factors such as nutrition, housing and rest, and partly by the scope and efficiency of various branches of physical education which, in turn, are influenced by facilities, organisation and leadership.

## *The Qualities Needed*

As a nation we are not gymnastically inclined ; but we are games minded ; so no Continental scheme of physical education can be wholly acceptable to this country : the best features of foreign schemes should therefore be carefully examined, adapted to suit our make-up and conditions, and only then included in a comprehensive British scheme of physical education for British boys and girls, men and women.

Only those activities should be included which can claim to possess recognised beneficial qualities such as :

*Sound All-round Developmental and Training Value.* Most activities have an effect on physical development, and, if well taught, have also good training value. In most cases, however, development is inclined to be one-sided and too limited.

*Corrective Value.* Activities can be generally corrective without having much effect on a specific physical defect. A surprising number of children, adolescents and adults suffer from minor physical defects which can be improved or corrected by means of carefully selected and well taught special exercises.

*Interest Value.* This is a very important quality, for without interest there is limited benefit. All physical activities are popular in schools because they are in contrast with the less practical classroom subjects. Even then, some physical activities are only comparatively popular, and pupils rarely indulge in them during their leisure time.

In the case of adolescents there is a still greater need for interest value, otherwise an activity may fail to attract because it is completely lacking in enjoyment. Although ideally training value and enjoyment go hand in hand, it will often be necessary, with post-school age groups, to sacrifice the one for the other.

*Carry-over Value.* Some physical activities lose their appeal immediately school days are over, whereas others fare well even in competition with the magnetism of the cinema and similar attractions. The number of young people who attend physical training or gymnastic classes is very small compared with the number who take to the roads and by-ways, on bicycle or on foot, even during the winter months. Games have a remarkable carry-over value in this country, and, in any scheme of physical education, must claim a major part. It is important that facilities should allow the regular playing of games by all pupils throughout the year, thus increasing the average standard of play.

The better one performs an activity the more anxious one is to continue it. Therefore the aim should be to offer a wide choice of activities to the pupils while they are still at school, to improve the standard of performance through good facilities and coaching, and then to see that similar conditions are available for them when they have left school.

*Moral and Social Value.* Because of their very nature, many activities give excellent opportunities for moral training. Even at a very early age pupils learn to play and strive as members of a team, to win or lose with good grace, and at a later stage to develop courage, initiative, thoroughness, and good-fellowship by boxing or wrestling, camping or climbing.

The social value of games is unquestionable, a fact which deserves full recognition when planning a scheme for any age group.

### A British Scheme of Physical Education

Bearing these factors in mind, what are the branches of physical activity which should be introduced at some stage during school life? General physical exercises or gymnastics should be included for sound physical development, all-round training and general mobility. Correct performance is important and increases enjoyment. Gymnastics must always play an important part within

a broad scheme of physical education since it provides a sound basis for other bodily activities, develops control of the body and the capacity to use one's strength to the best advantage. Children suffering from minor physical defects should be given special corrective exercises by a specially trained teacher who works in close co-operation with the school medical officer. Many defects can be corrected if treated regularly and scientifically at school, thus leaving the orthopædic clinics free to deal with more serious defects. Organised games periods should be planned to allow sound and systematic coaching for all members of the group. Starting with simple games and skills for the young, progression leads to the successful accomplishment of the fundamental skills of the national games, and the tactical playing of the games themselves by the older pupils. School and form teams for older boys and girls have their place, but these must not receive attention at the expense of the other pupils. In addition to the major team games the playing of such games as fives, tennis and squash should be developed, especially for their post-school value, as they can be played by two people and without previous organisation.

The ' athletics ' branch of physical education embraces a wide range of events. Field as well as track events should be included and regular practice carried out over a considerable period of the year. Over-specialisation in any particular athletic event should not be encouraged with school children. Achievement scales, which take height and weight as well as age into consideration, are valuable guides in athletic training.

Dance is one of the oldest physical activities and has an important contribution to make to education. It should form part of the training of girls at all ages, and certain forms, suitably presented, also appeal to boys and mixed groups. In this country, during recent years, dance has included folk, national and character dance, dance movement, modern or expression dance, the revived Greek dance, ballroom dance, and, in some cases, ballet or operatic dance.

All healthy children should be taught to swim. At the present time lack of accommodation prevents this, but it should be possible to cater for a good percentage of school children by arranging instruction for a definite age group, and giving preference on all occasions to non-swimmers. Class teaching methods should be used, and confidence gained by the frequent use of special confidence activities in the initial stages. Style should be the objective, speed often follows. Methods of life-saving suitable to the age of the children should be included.

Personal contests such as wrestling, boxing and fencing have abundant interest and training value for secondary school boys, youths and adults. Local styles of wrestling should be fostered in their respective districts.

Every encouragement should be given to the further development of outdoor activities such as camping, trekking, rambling, cycling, rowing, sailing, climbing, skating, and expeditions by land and sea. Camping on instructional lines should be introduced to older pupils on rough parts of playing fields or in other suitable and accessible ground. Following instruction, camping for long periods should be encouraged at established camps.

It is obvious that some of the activities included in this broad and British scheme of physical education cannot be introduced until the last year or two of school life, or even perhaps until the youth centre or county college stage. Most activities can, however, have their beginnings in the primary school. It is essential that there should be sound progressive training throughout, for only thus can real efficiency be expected. Unless the standard is high the will to continue may be absent, and therefore the desired degree of bodily health, physique and vigour may not be maintained.

### *Health Education and Physical Education*

Hygienic habits of proper feeding, activity, rest, and cleanliness of body and clothing are essential to health, and as an influence on the physical life of the child these hygienic habits can be regarded as a part of physical education.

The Education Act, 1944, imposes a duty on local education authorities to provide school milk and meals ; this extension of school feeding should enable children to derive a greater value from physical activity. As the alternation of suitable activity and rest is essential for proper growth and development, there should, where practicable, be a daily period of rest for all children, preferably in the open and following the mid-day meal. The importance of adequate sleep should be emphasised by schools, local education authorities, doctors, teachers and parents. The amount of homework should allow children to get to bed early, and young employees should finish work early enough to enable them to have sufficient recreation and sleep.

The health of the child is influenced by the nature of his clothing, which should be light and warm and permit freedom of movement. A special costume for physical education is necessary from the point of view of both hygiene and free movement, and under the Education Act, 1944, local education authorities are empowered to provide necessary clothing. A love of the open air should be encouraged by taking physical activities out of doors when weather permits. Camping, youth hostelling, and expeditions should be considerably extended for older pupils and members of youth groups. A higher standard of cleanliness is desirable in the individual, school, office and factory, and a more liberal provision

of washing facilities is generally necessary. The cleansing of the body after vigorous exercise must be regarded as an important part of physical education not only in schools but in youth and adult organisations.

Co-operation between the school medical officer and the physical educationist is of considerable importance and a necessary part of a satisfactory scheme of physical education. The Education Act, 1944, requires that provision shall be made for the medical inspection, at appropriate intervals, and treatment of pupils in attendance at schools. This should ensure the early detection, and consequently the correction, of many physical defects. It is important that children showing unfavourable reactions to exercise, or signs of physical disability, should be noted by the physical education teacher for special consideration. It is equally important that the medical officer should indicate those to be excluded from physical activity, those requiring remedial treatment, and those who would be harmed by normal physical education, but would benefit by special exercises.

In view of the outstanding results achieved in the Services and in certain hospitals through rehabilitation and physical development centres, there should be an extension of such facilities not only for school children, but for the community as a whole.

### *Our Ultimate Goal*

Looked at in this way the aims of physical education are seen to be much more than the development of physical power and grace and training in physical skills. These are important, but they are not enough. In this field of health education, as in all others, our goal must be to contribute something to the all-round development of the individual's inherited powers. Mind and character must be enriched as well as body, and the future thought of as well as the present. Carried out along the lines broadly described, physical education has a valuable and perhaps irreplaceable contribution to make, since it is not only good in itself but creates an interest and offers a medium through which the principles of wise and co-operative living can be acceptably taught.

## OUR NEW COVER

Readers will observe that the JOURNAL appears in a new cover ; and the Central Council for Health Education is greatly indebted to Mr. Kenneth Bird, C.B.E. (Fougasse) for his very great kindness in designing it.

Hlth Educ. J., 1947, 5, 32—36

# THE ROMANCE OF ANAESTHESIA

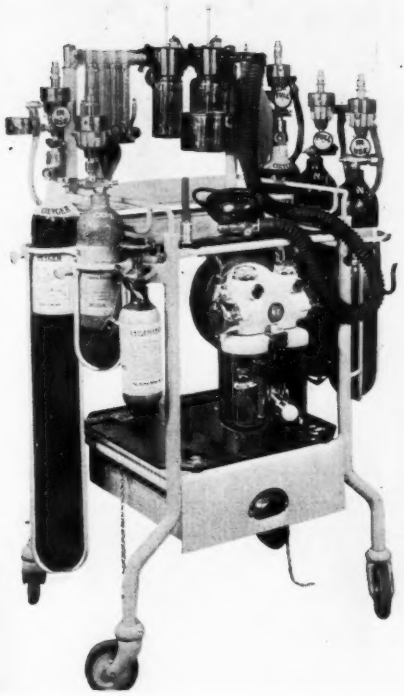
By Frankis Evans, M.B., M.R.C.S., L.R.C.P., *Anæsthetist, St. Bartholomew's Hospital, E.C.1, and St. Mark's Hospital for Rectal Diseases.*

One hundred years ago, on December 21, 1846, Mr. Liston amputated a leg under general anæsthesia. The anæsthetic used was ether, and was administered by Mr. Squire, who used an inhaler made for the occasion. This inhaler was still to be seen until recently. Thus came the boon of anæsthesia to England. As a matter of fact anæsthesia was not discovered by any one man, for many famous men had experimented with nitrous oxide (laughing gas) in the past. Sir Humphry Davy, Priestley, Michael Faraday and James Watt all experimented with this gas, but it was not until 1844 that Horace Wells, attending a demonstration by Colton, a dentist, given at the University College Hospital, realised the possibilities of the gas. He noticed that a man who had inhaled some nitrous oxide felt no pain when he struck his leg when falling. Wells persuaded Colton to give him gas, while his partner extracted a tooth, which was done quite painlessly. Wells returned to the United States, and gave demonstrations there. However, the poor man was driven to suicide, owing to his being discredited, for some of his demonstrations were not as successful as they might have been. Before that date there lived a practitioner in Ludlow by name Henry Hill Hickman, who was so distressed at the sufferings of patients in the operating theatre that he decided to do his best to help them by experiments with various gases on animals with a view to producing anæsthesia. In this he was successful, but failed to interest his colleagues in his discovery either in this country or in France. He read a paper before the London Medical Society in 1824, and addressed the Academy in Paris in 1828, but the opposition was too great, and he died a brokenhearted man two years later.

### *The Introduction of Ether*

In the year 1842 Crawford Long, who lived in the little town of Jefferson in Georgia, U.S.A., used ether for painless operations. There is still to be seen the bill presented to Major Venable in which he was charged two dollars for removing a tumour from his neck, and fifty cents for giving ether. Long, however, did not spread his achievement as he should, and it fell to the lot of another man, William Morton, to popularise the use of ether. He it was who gave ether in the Massachusetts General Hospital when Mr. J. C. Warren operated. This was in October, 1846, and it was as a result of a letter describing this

Anaesthesia :



The New

The Old

[With acknowledgment to Bill Brandt]

Slum Conditions in London

(See article on page 2)

event written by Dr. Bigelow of Boston to his friend Dr. Boot of Gower Street, London, that ether was used ; first for the extraction of some teeth at Dr. Boot's house in Gower Street, and a few days later at University College Hospital further down the street. The use of ether rapidly spread throughout the country and to the Continent of Europe.

Chloroform was used by James Young Simpson, professor of medicine at Edinburgh and a keen obstetrician, at the suggestion of Waldie, a pharmaceutical chemist of Liverpool. Simpson used the drug on women in labour, and was delighted with the results. He encountered much opposition to the use of chloroform for childbirth, not from his colleagues, but from the pulpit. However, he converted public opinion to his way of thinking, and the use of chloroform became general.

Foremost among the pioneers of anæsthesia is John Snow, who was the first specialist in anæsthesia, and who worked at St. George's Hospital and later at University College Hospital. John Snow did much to further the cause of anæsthesia, and he it was who administered chloroform to Queen Victoria during her last two confinements. Hence " Chloroform à la Reine."

### *Improved Methods*

John Thomas Clover is another man who did much for anæsthesia, and he it was who designed the Clover's ether apparatus. This machine was an ether vaporiser, and Clover hit upon and perfected the use of nitrous oxide to produce unconsciousness, following up with ether. The induction of anæsthesia with ether alone was not only slow but was exceedingly unpleasant to the patient. Clover succeeded in finding a method which was far less unpleasant and quicker. The gas-ether induction required considerable skill on the part of the anæsthetist, and the induction of anæsthesia was not always placid. It was only too frequently that the patient complained of feeling suffocated, and often there was almost a free fight during an unpremeditated excitement stage. However, it was something that the boon of unconsciousness had been achieved, and many people felt that a few moments of discomfort mattered little when compared with the benefits conferred. Even so there were men who felt that Clover's inhaler could be improved, although it had been in use for many successful years. Ether had certain drawbacks. Patients were apt to become very excited during the induction stage, and often they were very sick afterwards. Thus an attempt was made to diminish, if not remove, these unpleasant effects of ether. Many men have contributed to alleviate the lot of the patient who is about to undergo an operation. It is not possible to enumerate them all, but the use of nitrous oxide combined with oxygen in suitable proportions as used by Gwathmey, McKesson, Boyle and the rest did much

to push anæsthesia a step further. The use of premedication before operation did much, too, to allay apprehension, and helped to produce a smooth induction without excitement. Ether could be added to these gases if required.

Gas and oxygen, as it came to be known, was an excellent anæsthetic, for it proved to be adequate for most operations except those in which the abdomen was to be opened, for in this case the muscles must be completely relaxed. Under these conditions " gas and oxygen " came to be looked on as a euphemism for gas-oxygen-ether, in which the most potent member of the combine was ether ; the gas-oxygen merely becoming a vehicle for the ether.

### *The Next Step*

Then came the discovery of the basal anæsthetics and hypnotics. Avertin (tribrom ethyl alcohol) was a great boon, for it could be given per rectum to produce anything from deep sleep to anæsthesia. Thus were the terrors of the patient relieved. No longer need the patient dread an anæsthetic, fearing the pangs of suffocation. All that happened was that some fluid was run in per rectum, and the patient fell asleep in bed, to wake up in bed once more with the operation over. This was of great help in operations upon the thyroid gland, for in certain circumstances patients with this condition are particularly excitable. Thus, thanks to avertin, thyroid surgery was revolutionised, and a major ordeal vanished. No mention has yet been made of spinal anæsthesia. Before the close of the last century Corning of New York discovered the principle of spinal analgesia. He injected thirty minims of 3 per cent cocaine into the spinal canal, and obtained excellent analgesia of the legs. Some three years or so later, August Bier, of Bonn, tried the method upon himself, and finding it successful used it upon his patients. Eventually the method became stabilised, and cocaine gave place to stovaine, which in turn was rivalled by nupercaine. This latter drug was introduced by Howard Jones, as a solution lighter than the cerebro-spinal fluid. Eventually a solution of the drug was introduced which was heavier. Both solutions have their uses, and when properly used will provide all the muscular relaxation needed. Thus, if spinal analgesia be used in combination with gas-oxygen or one of the methods mentioned below, no ether need be used, and one of the causes of post-operative vomiting is removed. Spinal anæsthesia, however, has certain limitations, and there are certain risks associated with its use, such as possible sepsis. Even so, the advantages far outweigh the disadvantages, and the writer feels that in certain operations spinal analgesia will hold its own for many years, but it should always be used in combination with some method to keep the patient asleep.

### *Anaesthesia by Injection*

Meanwhile, the search for improvement went on, and endeavour produced the short acting barbiturates, which were given intravenously. This proved to be another milestone in anæsthesia, for it was now possible to produce full anæsthesia by injecting a substance into a vein. By the use of these almost magic drugs it is possible to give complete abdominal relaxation, and major abdominal operations can be performed with pentothal (as one of these drugs is named) alone.

Inhalation anæsthesia, too, advanced rapidly, and gave us the gas cyclopropane. This has proved a handy and valuable gift to the anæsthetist, for it is excellent when used in combination with the short acting intravenous barbiturates, for the respiration with this gas is slow and quiet, resembling normal sleep.

To Hewer we are indebted for the introduction of another volatile inhalation anæsthetic, trilene. This can be combined with gas-oxygen, and if used in minute concentration as was intended is a most useful addition to the anæsthetist's armamentarium. It is proving itself also in the sphere of obstetrics for the relief of labour pains.

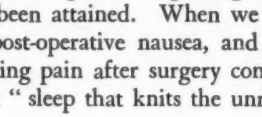
The modern anæsthetist needs to be not only something of a physicist and physiologist, but also he has to be an anatomist. Local analgesia and regional analgesia both play their part, for pain stimuli can be blocked at the site of operation, or they can be stopped along the nerves supplying the operation area. Novocain can be injected around the nerve trunks supplying the operation area, thus stopping pain and giving the needed relaxation. Field block, intercostal block, paravertebral block, and epidural are examples of this type of analgesia, but there is not space in an article of this sort to consider them in detail.

### *The Latest Discovery*

Lastly we come to the Cinderella of anæsthesia, the Indian arrow poison, curare. Another milestone has been passed, for this discovery opens up a vast new field for the control of relaxation. By means of the intravenous injection of a few milligrammes of the drug complete relaxation of all the muscles can be obtained. This is one of the greatest steps forward since the discovery of spinal analgesia. Curare is remarkable in that it does not cause any fall of blood pressure. It will, however, stop the respiration if given too liberally, but even this mishap can be overcome by controlled respiration, which is under the direct control of the anæsthetist. There is also a direct antidote in prostigmine, the wonder drug in myasthenia gravis.

As a result of all these discoveries and of all these advances, how is the patient benefited? No longer is it necessary to push ether to obtain

the necessary muscular relaxation, and the patient is spared much post-operative vomiting and nausea, and the taste of ether for some hours afterwards. Anæsthesia is not a science, for it cannot be reduced to a formula. We are dealing with a living entity, and the body is influenced by the mental state of the individual within it. The frightened patient needs more anæsthetic than the placid unimaginative type. Anæsthesia is an art, and will ever be so. It is the art of combining the requisite drugs and methods with the power of gaining the patient's confidence. The ideal has not yet been attained. When we can guarantee that the patient will have no post-operative nausea, and when we can prevent the patient from suffering pain after surgery completely, then only will anæsthesia become that " sleep that knits the unravelled sleeve of care."



## SUMMER SCHOOLS IN 1947

The Central Council for Health Education will hold two residential Summer Schools in Health Education in 1947. The first school will be at Keble College, Oxford, from July 25 to August 8, inclusive, at an inclusive fee of £16 16s. per student. The second school will be at Bede College, Durham, from August 20 to September 3, inclusive, at an inclusive fee of £14 14s. per student. The objects of each course are to present the principles and general content, and the methods and field practice of health education to a wide variety of students, including doctors, educational and medical administrators, teachers, youth leaders, public health nurses, industrial nurses, industrial welfare workers, training organisers, sanitary inspectors and students.

An outstanding feature of the Central Council for Health Education Summer Schools is that the social side is very well developed. It was unanimously felt by students at the 1946 Summer School that it was an extremely enjoyable as well as an educative experience.

An early application is desirable, and those wishing to book accommodation or to be supplied with further details about the Schools should apply to the Medical Adviser and Secretary, The Central Council for Health Education, Tavistock House, Tavistock Square, London, W.C.1.

Hlth. Educ. J., 1947, 5, 37—40

# SELF-REGULATION OF DIET IN CHILDHOOD

By Clara M. Davis, A.B., M.D.,
*Associate Attending Physician, The Children's Memorial Hospital, Chicago.*

Wartime rationing of food, with its resultant curbs on selective appetite, has been a new experience for adults in England. But for infants and young children, both in your country and mine, it is an old story. Regulation of their diets by their elders has long been customary, and has been advocated and imposed on them by my profession ever since the rise of paediatrics as a medical speciality. Special foods and meals for young children have added to the work in the home, have produced that strange young individual who has to be coaxed to eat and a spate of paediatric and psychiatric literature on lack of appetite and behaviour problems connected with eating. With the prospect of more liberal food supplies to come, it may not be amiss to present now the evidence for the liberation of young children from the irksomeness of being rationed by diets prescribed on the basis of age without regard to selective appetite.

### *The Experiment*

The experimental study of self-selection of diet by newly weaned infants (designed to test the competency of selective appetite at the level of total inexperience with the common foods of adult life and ignorance of their dietary reputations) was begun at Mt. Sinai Hospital (Cleveland, Ohio) in 1928. After two years it was transferred to the Santa Chiara Nursery, established and maintained for its purposes near the Children's Memorial Hospital in Chicago. In all, fifteen infants were taken as its subjects and completed experimental periods varying from six months (two infants) to four years and nine months.

After being admitted, an infant was nursed by his mother for the last time, and, at the next nursery meal-time, seated in a little arm-chair at his own small table, he was served the same meal that all the others, regardless of age, were having. He was allowed to feed himself with hands or spoon if he could—all the babies tried to do so but only one was successful at his first meal. Each of the others was helped by a nursemaid seated at the right-hand end of his table. When, and only when, he reached for food or touched a dish she took a spoonful and, if he opened his mouth for it, put it in ; otherwise she put the food back in the dish. She was not permitted to talk to the infant or to others in the room, comment on what he did, attract his attention to any food,

or refuse him any for which he reached. Her help was decreased *pari passu* as the infant became able to feed himself with hands or spoon, and all fifteen babies became wholly independent eaters at 14 to 16 months of age, requiring only waitress service for the refilling of empty glasses or dishes. None was ever allowed to witness meals of adults or of children other than those taking part in the experiment.

The food list of the experiment comprised milks, sweet and sour (whole natural lactic), beef, lamb, chicken, sea-fish, brains, sweetbreads, kidneys, liver, bone marrow, bone jelly, eggs, six fruits, nine vegetables, five whole-grain cereals and sea-salt. Canned, preserved and dehydrated foods, and partial products of natural foods (refined sugar and salt, dairy products, and highly milled cereals) were excluded from the list in order to hold the experiment to its simplest terms. Many of the foods were served both raw and cooked. When cooked, each was cooked separately, without the addition of water (except in the case of cereals), milk, salt or other seasonings, and foods were never combined or mixed as in soups, puddings, etc.

Since the food list comprised too many items to be prepared and served at one time, the foods were allotted to meals according to a fixed schedule that provided a choice of milks, animal protein foods, cereals, etc., at every meal. Four meals a day were served to all three infants during the first year of the study ; thereafter all had but three, regardless of age, with only water between meals.

Each food for every child was served in a separate dish and in weighed or, in the case of liquids, measured quantities and all were placed on his table at the begining of the meal. Whenever an infant ate all the contents of a dish it was promptly refilled as often as was needed to ensure his having all he wanted of that particular food ; thus he was not obliged to take second choices. At the end of the meal the uneaten remains of the foods served to each child were weighed and the amounts of each served, eaten, and returned were entered on the child's record sheet for that meal. When the experiment was terminated, detailed records of slightly more than 36,000 meals eaten by the fifteen children were available for statistical study.

### *The Results*

Data for the evaluation of their nutritional condition and health were : daily weights, taken naked before breakfast, temperatures, stools and any deviation from good health ; bi-weekly urine examinations ; monthly heights, blood counts and haemoglobin estimations ; roentgenograms of bones on admission and at intervals lengthened with increase in age.

Like the lives of the happy, such data of the healthy and vigorous show little that is dramatic. All had hearty appetites, all throve. None was

constipated, none had digestive troubles and there were no serious illnesses.

Although no two of these young children ate alike, that is, had the same patterns of food preferences, none was small, thin, fat or flabby—all being well built, firm of flesh and vigorous. Their growth rates closely followed or exceeded accepted American standards. Red cell counts after the first few months ranged between 4½ and 6 million cells with haemoglobin percentages of 90 to 108. Exceptionally fine calcification of bones was attained by all and so reported by the Roentgenologist of the Children's Memorial Hospital.

But it was the statistical analysis of the records of the foods eaten by each child that showed to what extent nutritional requirements had been met. The acid-base balance of each self-chosen diet had been constantly slightly on the alkaline side. Average daily calories furnished by each conformed, in every month, to the scientific standards for age of the child and per kilogram of body weight, except in the few instances in which average daily calories of infants undernourished before weaning were in excess of the standards during their first six months periods. Each diet met, month by month, the standard requirements in percentage distribution of protein, carbohydrate and fat, and showed an orderly decline in calories and protein per kilogram of body weight in accordance with decrease in rate of growth and increase in energy requirements.

### *The Explanation*

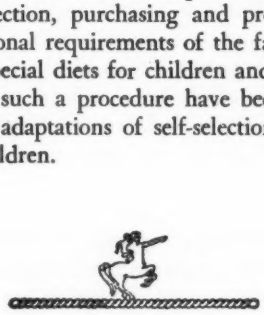
Such successful functioning of appetite in infants and young children may, at first thought, seem amazing ; yet, if considered in physiological perspective, it is only what might have been expected. For we accept without question, and with only the occasional interest accorded an old story, the self-regulatory character of those systems of the body—respiration, circulation, glandular activities, etc.—that require too precise integration of complex mechanisms to be entrusted to the direction of our easily distractible and forgetful minds. In the nutritional system, below the level of the swallowing of food all is self-regulatory even to the self-selective activities of a physicochemical nature by which the individual cells of all organs and tissues are nourished. And as the ultimate consumers of dietary essentials, their aggregate nutritional needs constitute the nutritional requirements of the body. The accuracy with which selective appetite in the babies of the experiment met known nutritional requirements suggests that appetite is another of the many self-regulatory activities whose functions are preparatory to cellular nutrition, geared to its needs, and require neither nutritional knowledge nor direction from the mind.

As is the rule in self-regulatory mechanisms of the body, its efficiency

is determined by the degree to which its own particular requirements for normal functioning are met. For selective appetite these are evidently (1) full coverage of nutritional requirement by the foods made available for eating, and (2) absence of distractions and of direction or interference from others in the eating of them.

Fulfilment of these requirements is under the control of adults, and rightly so. For the *primary* selection of foods and the procurement and preparation of them are nutritional activities that are under the conscious direction of the mind, and are carried on in a field no part of which belongs to the young child since success is determined by intelligence, knowledge, skill, and the ability to profit by the experience of others. Moreover, management of children's meals, with power to thwart selective appetite or refrain from doing so, cannot be taken from the control of adults.

But the results of the experiment suggest that efforts to improve the nutritional status of children can be more profitably directed to education of mothers in the selection, purchasing and preparation of foods for coverage of the nutritional requirements of the family as a whole, than to the prescribing of special diets for children and ways of getting foods eaten willy-nilly. On such a procedure have been based the successful and greatly simplified adaptations of self-selection of diet to home and hospital feeding of children.



## BIOGRAPHICAL NOTES

CLARA M. DAVIS, A.B., M.D.—Associate Attending Physician, The Children's Memorial Hospital, Chicago. Author and conductor of *The Self Selection of Diet by Newly Weaned Infants.*

LADY MAY MELLANBY, Hon. D.Sc.(Shef. and Liverpool).—Engaged on dental research for the Medical Research Council for nearly 30 years. Many publications of a scientific nature, principally dealing with conditions affecting the structure of the teeth and related tissues and their resistance to disease. Honorary Member of the British Dental Association.

HAROLD THOMAS.—During R.A.M.C. service 1908–26 qualified as trained nurse and as dispenser. Orderly or senior wardmaster of V.D. section of military hospitals at Curragh Camp, Potchefetroom, Rawalpindi and Glasgow; since January, 1933, senior orderly V.D. Clinic, County Borough of Grimsby. Author of booklet, *People Who Live in Glass Houses.*

Hlth. Educ. J., 1947, 5, 41—44

# METHOD IN HEALTH EDUCATION*—I. CHOICE OF SUBJECT-MATTER

By Arthur Pinsent, M.B.E., M.A., B.Sc., *Senior Lecturer, Department of Education, University College of Wales, Aberystwyth.*

The object of this and a subsequent article is to suggest to workers in the field of Health Education, who are not professional teachers, certain general principles of teaching method, the application of which may enhance the interest and value of talks, demonstrations, displays and other educative activities for various types of audience.

## *Can One Learn How to Teach?*

The main requirements for any educative work can be stated very simply in two short phrases—" How to be interesting " and " How to be clear." In so far as any teaching is both interesting and clear it cannot fail to be educative. It is worth noting in passing that clarity is an important factor in interest. However, it is much easier to state these criteria of good teaching in words than to realise them in practice. I propose, therefore, to consider in some detail how their practical realisation may be facilitated.

An obstinate refusal to believe that it is possible to learn how to teach still persists in spite of much evidence to the contrary. Dr. Joad is a recent notable expositor of this rather outworn creed. In a book *About Education* he takes leave to insist that " the technique of teaching is not something that can readily be taught or learned . . . you present a subject clearly and interestingly or confusedly and boringly because you have that sort of mind ; and if confusedly and boringly then no amount of instruction will enable you to present it clearly and interestingly, or it will help you very little."

In other words we must all be born teachers or not teach at all.

This may not be quite nonsense but it is very nearly so. If we had to depend on the birth-rate of ' born doctors ' we should be in a sad case, and if people can be taught medicine (which nobody now denies) they can also be taught pedagogy. In any case, my experience, both as a pupil and student, indicates that the supply of ' born teachers ' is strictly limited and some artificial insemination of professional skill is highly desirable. Even Dr. Joad concedes that there are certain general

* Part II of this article will appear in our next issue.

principles of teaching which can be inculcated ; and certain uniformities of method which can be presented. That is precisely what I have in view in what follows.

In the first place, methods must be related to the results we hope to attain. We need to define clearly what results should follow good health education. Then, having stated our objectives, the consideration of ways and means can follow two leads, first, choice of subject-matter for teaching purposes which is most likely to attract the interest of a particular audience ; and, second, getting the chosen topic over effectively. This second lead will be followed in the subsequent article.

### *The Objectives of Health Education*

I would suggest the following as the most important objectives :

(i) Accurate knowledge of standards and conditions for optimum health, including both personal and social health.

(ii) Skill in healthy habits of living. Knowledge, by itself, is not sufficient. It must be translated into effective practice.

(iii) Attitudes of interest in, valuation of, and willingness to organise and participate in (i) and (ii) above.

The third objective is perhaps the most important of all. Without sound attitudes, knowledge and skills will not be accepted and practised *with conviction*. People say too often : " What's it matter?" " It won't hurt." " Just another of these modern doctor's fads." Propaganda and instruction must attract and hold people's interest and *stimulate their imagination* so that the topics are thought about, discussed and acted upon *outside the classroom or clinic*.

### *Choosing Topics to Interest Audiences*

What topics are likely to attract interest and stimulate imagination? We can ask the question in another way, namely, what do people want to know or do? " Quite," you may say, " but that gets us no farther. How can we decide what people want to know or do?"

This is where our promised general principles begin to be useful.

Broadly speaking, people want to know about, or do, what satisfies their personal and social needs ; their needs for health, security, economic advantage, status and prestige. But these typical needs will vary very much according to the *stage of development* of the learners, and according to their economic and social background.

Therefore, in trying to choose topics for health education, we must choose primarily in accordance with the probable stage of development of the potential audience, and then modify the treatment of the chosen topic to suit the economic and social background in question.

### *Stages of Development*

What does this mean? For the layman, a tolerably good guide is Shakespeare's well-known scheme of the seven ages of man. Let us see what are the predominant needs *and therefore interests* of each of these 'ages' from the point of view of health education.

In infancy and early childhood the individual is interested primarily in himself and his body—eating, excreting, sleeping, playing, perfecting the basic skills of walking, talking, balancing, running, climbing. At this stage the child needs to be introduced to the more obvious parts of his own body and taught these basic skills. This is the time for establishing by story and play the first simple knowledge, habits and attitudes of healthy living.

In boy- and girlhood (say, from about seven to twelve years) interest is directed predominantly to the environment. Sense organs mature. The field of activity widens. Children are interested in acquiring strength and endurance. They usually want to grow up like some admired adult. Interest in more formal games and exercises begins to emerge. There is a strong desire to investigate the more obvious features of the environment. This is the time to learn some of the fascinating *facts* about things and animals in the neighbourhood. During this period, in the normal individual *interest in the opposite sex is at its lowest intensity*. Interest in exploration, travel and adventure is high, and anything associated with these activities, for example, camp hygiene, is likely to be attractive particularly in the second half of the period. The strong factual interest in eggs, insects, birds, young animals makes a good foundation for instruction about the mechanisms of reproduction and growth. The proper care of pets will serve as a text for much health education. Children at this stage are intensely interested in *how things work*, including their own bodies.

At puberty interest reverts to pre-occupation with the self and the disturbing changes going on therein ; mysterious and rather frightening changes unless properly understood.

In adolescence, the personality adjusted to the ripened sex-functions needs consolidation at the more complex level. Strong interest in the opposite sex develops. The adolescent boy and girl want, desperately, to know what will enhance their health, strength, beauty, grace and personal attractiveness ; and what to do about this gnawing desire for the other sex. Social aspirations develop and at this stage *ideals* of health and beauty begin to take definite shape.

At the young adult stage economic pressures begin to appear. Interest is now directed toward courtship, marriage, sexual adjustment (both physical and psychological), vocation, family, care of children, industrial and social health (such as housing, nutrition, epidemic disease).

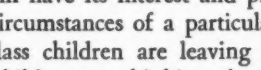
In middle age comes the ' change of life,' with a diminution of sex and other vital powers. This change requires another set of re-adjustments about which people need advice. As in puberty, the change causes anxiety unless the causes are understood. In middle age both sexes are interested in diet, exercise (keeping the fat down, or, if that is not possible, controlling its local distribution), recreative activities and the prevention of ailments characteristic of this and the last stage of development.

We have now indicated very briefly six of the proverbial seven ages (or stages), and if the first six have been successfully managed, there is a reasonable probability that the seventh will look after itself.

I suggest then that doctors, nurses, social workers and others interested in health education can find a useful empirical guide to what topics are likely to be interesting by reference to these characteristic stages of normal development and the predominant needs of each. A detailed application of this principle can be found in the pamphlet of the Central Council for Health Education, " A Tentative Scheme for Sex Education," based on Mr. Bibby's book, *Sex Education. A Guide for Parents, Teachers, and Youth Leaders.*

### Economic and Social Background

Economic and social background affects interests from early childhood onwards, but it becomes a factor of predominant importance after puberty. Any topic will have its interest and practical value enhanced if it is related to the circumstances of a particular audience. Thus, at the age when upper-class children are leaving preparatory for public schools, working-class children are thinking about earning a living. In the later adolescent and adult stages, wage levels, housing conditions, type of occupation—manual, clerical, professional ; active or sedentary ; urban or rural—affect people's health needs and therefore their interests. The successful worker in health education will take care to *know his audiences* as well as he knows his subject-matter.



## BIOGRAPHICAL NOTE

ARTHUR PINSENT, M.B.E., M.A., B.Sc.—Senior Lecturer, Department of Education, University College of Wales, Aberystwyth. Has been Science Master in Secondary School ; Headmaster of a ' modern ' school ; Vice-Principal of Emergency Training College (1921-23). Author *Principles of Teaching Method* and papers on educational psychology and theory of education.

# HOUSING AND TOWN PLANNING FILMS

NOTE.—Unless otherwise stated all these films are obtainable from the Central Film Library, Imperial Institute, S.W.7.

**THE LONDONERS. 16 mm. "Realist" Film Unit. 18 minutes.**

The story of the progress achieved in London's housing, health and education services during fifty years of democratic local government, made to celebrate the jubilee of the L.C.C.

**WHEN WE BUILD AGAIN. 16 mm. "Strand" Film Unit. 30 minutes.**

A film about rehousing and town planning based on the survey published by the Bournville Village Trust. The film surveys the still widespread slums and the congested inner suburbs of the big industrial towns. It examines the faults of the housing estates and flats built since the last war and shows how some of these can be avoided. An architect explains how he would re-plan a built-up area and plan a new town for the people who should be moved from the old town. Comments and opinions on the problems are provided by interviews with people living in the places shown in the film.

**POWER FOR THE HIGHLANDS. 35 mm. and 16 mm. "Rotha" Film Production Unit. 15 minutes.**

The mountains and glens of the Highlands look beautiful to the casual visitor. But there are few people living there. Bracken has wasted the hillsides, land that might produce crops and support sheep and cattle is unfarmed, and water from the mountains, a great potential source of power, rushes down uncontrolled turning valleys into bogs. The North of Scotland Hydro-Electricity Board has now been set up by Parliament to convert this water into power and to promote developments in the Highlands. Two soldiers of the 51st (Highland) Division, an engineer and a ghillie, discuss how the scheme can benefit the people of the Highlands, and two American soldiers explain what has been achieved by similar schemes under the Tennessee Valley Authority. The film was taken in Glen Affric, Strathfarrar, Duckie and Galloway.

**PROUD CITY. 35 mm. and 16 mm. C. O. I. Film Unit. 26 minutes.**

The proposals of the County of London Plan explained by Sir Patrick Abercrombie and Mr. H. J. Forshaw, chief architect to the L.C.C., with members of his department, who prepared the plan, and by Lord Latham, Leader of the Council.

**HOUSING IN SCOTLAND. 35 mm. and 16 mm. C. O. I. Film Unit. 14 minutes.**

Scotland's housing plans are being made to meet opinions obtained, from men and women in the services and in the factories, by the Scottish Housing Advisory Committee. Permanent and temporary houses, cottages and flats, and duplex houses which can later be transformed into single dwellings, all figure in the plans, and the film shows the first examples. Made for Scottish Department of Health.

**DEVELOPMENT OF THE ENGLISH TOWN. 16 mm. Gaumont-British Instructional Film. 20 minutes.**

A survey of town planning in England from pre-Roman settlements to modern housing estates. The film was made for the British Council for circulation abroad.

*Obtainable from Gebescope Library, Tower House, Woodchester, Nr. Stroud.*

**HOMES FOR ALL. 35 mm. "This Modern Age" Film Unit. 20 minutes.**

Outlines in a dramatic way the development of housing following the industrial revolution, the cramped slum conditions the big industrial cities produced, and the efforts made between the wars to solve the housing problem by building suburbs on the fringe and high flats in the centre of cities. The film points to the creation of self-contained communities as a solution. It shows how prefabrication and mass-production of housing components can speed up house building.

*Obtainable from General Film Distributors, Ltd., 127, Wardour Street, W.1.*

Hlth. Educ. J., 1947, 5, 46—48

# REVIEWS

CRIMINAL JUSTICE AND SOCIAL RECONSTRUCTION, by Dr. Hermann Mannheim. (Kegan Paul. 1946. Pp. 290. Price 15s.)

Dr. Mannheim's theme is that while methods of treating the law-breaker have been considerably improved in recent years, no corresponding reform has been made of the criminal law itself in the light of modern social and economic ideas.

In his survey of the whole field of anti-social behaviour he finds many gaps and anomalies in the criminal code, and though more concerned with general principles than with detail, he makes a number of specific recommendations which are well worth serious consideration. Experience in this country suggests that it is easier to add new crimes to the statute book than to get a systematic revision of the existing code or the machinery for its administration. But it is clear that the subject of criminal justice should not be ignored in plans of social reconstruction, and Dr. Mannheim's book, which is stimulating and interesting, serves the excellent purpose of focusing attention on the need for examining the basis of the criminal law from the point of view of the requirements of our changing society.

HENRY LESSER.

SEX, LIFE AND FAITH, by Rom Landau. (Faber & Faber. 1946. Pp. 319. Illustrated. Price 21s.)

Rom Landau has given us in *Sex, Life and Faith* a book which addresses itself to one of the burning questions of our time. Into the writing of it he has put much labour. Its compass is wide, its conception bold and ambitious. He has read extensively, and claims also considerable clinical experience. He writes with sincerity, and the material is well arranged and set out.

All this would lead one to expect a volume which will rank as a milestone in the development of this theme. Unfortunately this high promise is not fulfilled. For a number of reasons, Mr. Landau fails to give us a first-rate book. One gains the impression that he has sacrificed depth for breadth, that he has assembled so much material that he has been unable to correlate it effectively, that in his eagerness to make his views challenging and popular he has allowed them to lose the weight of genuine authority.

Despite these serious weaknesses, the book contains much that will prove interesting and provocative to the student of the subject. Much the best section of it is the frank and bold discussion of homosexuality in the light of our modern psychological knowledge. At this point Mr. Landau calls for a new and more tolerant attitude on the part of the general public, and for reforms in law which are certainly long overdue.

DAVID MACE.

MARRIAGE AND FREEDOM, by Dr. Eustace Chesser. (Rich & Cowan. 1946. Pp. 149. Price 12s. 6d.)

Dr. Chesser's earlier book, *Love Without Fear,* aroused much controversy, and involved him in a court case. This volume is not likely to have such a stormy career, because we have shed some of our false taboos in the interim. But that is not the only reason. I should judge that Dr. Chesser himself has been doing some wide reading and some hard and fruitful thinking.

The result is a book which will undoubtedly do much good at the present time. It is a gratifying departure from the tradition that an

author who writes about marriage must occupy himself mainly with sex. Dr. Chesser puts the whole subject in a broader and truer perspective. His thesis is that marriage to-day must be a free and equal partnership, and that our "romantic delusions" and over-preoccupation with sexual technique are seriously obscuring the main issue. Marriage is essentially a partnership, and calls for emotional maturity in those who undertake it. Dr. Chesser has some sound and timely things to say about compatibility, about sex morality, about sex education and about divorce. He is healthily indignant against every kind of humbug and hypocrisy, yet patient and encouraging towards the ill-equipped and the under-privileged. The style is popular, yet never descends to the cheap and tawdry. The approach is human and personal. It is perhaps a pity that he gives no references for his quotations; although a volume entirely free from footnotes undoubtedly makes pleasant reading.

I heartily commend this book. In my judgment it adopts throughout the right approach to a subject on which much rubbish has been written. I can imagine no one who would not be the better for reading it.

DAVID MACE.

TOTAL EDUCATION, by M. L. Jacks, M.A. (Kegan Paul. 1946. Pp. 160. Price 10s. 6d.)

Mr. Jacks is here making a powerful plea for an entirely new attitude towards education. Education, he claims, more than other social institutions, has suffered from *ad hoc* planning and a lack of co-ordinated aims. If it is to play its part effectively in the coming years it must be integrated, both with the community as a whole and in its own aims and administration. Education must "no longer be an isolated and self-conscious department of life, but an integral part of it."

The 1944 Education Act, for the first time, states clearly the aim of our educational system; but if the principles of "total education," as established in the early chapters of this book, are to be applied, the provisions of the Act must be merely the foundation on which a new system is to be built. Mr. Jacks considers in detail some of the changes in administration, in curricula, in the training of teachers and in the attitude of the community, which will be necessary before "total education" can become a reality.

K. CATLIN.

FROEBEL EDUCATION TO-DAY, by Barbara Priestman. (University of London Press. 1946. Pp. 40. Illustrated. Price 2s. 6d.)

This pamphlet, which "is the outcome of the desire of the Members' Committee of the National Frœbel Foundation for a short work to put into the hands of those who want to know something about Frœbel Education" serves its purpose admirably. It contains a brief account of Frœbel's educational philosophy together with an examination of what is entailed when this philosophy is translated into the day-to-day activities of a Frœbel school. The text is well illustrated by photographs taken in such a school.

It is true that, as the author says, "Frœbel theory and practice have filtered out into most good and progressive schools"; but there are many teachers who do not realise how much that is good in modern education we owe to Frœbel and many others whose whole approach to their work might be revolutionised by a closer acquaintance with the Frœbelian viewpoint. This pamphlet deserves a very wide circulation among all who are concerned with

the education of children of primary school age.

K. CATLIN.

PSYCHOLOGY OF CHILDHOOD TO MATURITY, by J. Guilfoyle Williams, B.Sc. (Heinemann Medical Books. 1946. Pp. 324. Price 8s. 6d.)

In this book the author has attempted to give an account of the psychological development of the individual from birth to maturity. In addition the book also has chapters on "Masculine and Feminine Psychology," "Sex, Love and Marriage," "The Problems of Delinquency," "Psychical Research" and "The Problem of Death." The field surveyed is thus very extensive and clearly cannot be examined in detail within so small a compass.

The book should prove interesting to the general reader who would, however, be well advised not to rest content until he has taken up some of the numerous references to further reading. The author quotes widely, but some of his authorities might feel a little uneasy at the company they are forced to keep. It is only against a background of very much wider knowledge that the value of the author's attempt to synthesise modern views can be assessed with any accuracy.

K. CATLIN.

YOU AND YOUR CHILDREN, by Dr. Doris Odlum. (Published for the Ministry of Health by H.M. Stationery Office. 1946. Pp. 32. Illustrated. Price 6d.)

This admirable little book contains ten talks on children's difficulties and how to deal with them, recently broadcast by "A Woman Medical Psychologist." It is backed with sound advice and useful information and fills an urgently felt need. The B.B.C. and the Ministry of Health are to be congratulated for making these talks available in so charming a production and at so low a cost.

K. CATLIN.

BIOLOGY, by F. Mary Green, M.A., Ph.D. (Murray. 1946. Pp. 252. Illustrated. Price 5s. 6d.)

The purpose of this book is to encourage skill in observation and experiment, to develop ability to think and reason, to cultivate disciplined imagination and impartial judgment, as well as to interest pupils in scientific progress affecting man's individual and social development. *Biology* covers the requirements in biology of the revised School Certificate General Science syllabuses for two credits of all Examining Boards. It has very clear line diagrams, a good index, questions at the end of each chapter and guidance for experimental work in functional biology. It is a pity that the last chapter, on "Life," is so short and so entirely limited to plants, animals and the physical sphere. In this it has missed a great opportunity to stimulate further interest in social biology and the process of living.

P. M. TAYLOR.

LIFE GOES ON, by W. Threadgold, B.Sc. (E. J. Arnold & Son, Ltd., Glasgow. Pp. 48. Illustrated.)

This short account of mating and reproduction as they occur in typical plants, animals and human beings is suitable for children of 9 to 11 and will be welcomed by teachers in junior mixed schools as it is sufficiently general to be interesting to both boys and girls. It is based on a series of lessons actually given and exercises are provided to correspond with each chapter, while suitable films are suggested. It is somewhat surprising that *Sex In Life*, presented by the Central Council for Health Education, is not included among these.

V. D. SWAISLAND.